DOCUMENT RESUME

ED 089 430 EA 006 017

AUTHOR	Rhyne, R. F.; And Others
TITLE	Far Projections of Alternative Educational Patterns Associated with Particular Contingent U.S. Patterns.
INSTITUTION	Johnson Research Associates, Inc., Santa Barbara, Calif.
SPONS AGENCY	Stanford Research Inst., Menlo Park, Calif. Educational Policy Research Center.
REPORT NO	JRA-WP-71-7
PUB DATE	Sep 71
NOTE	71p.
EDRS PRICE	MF-$0.75 HC-$3.15 PLUS POSTAGE
DESCRIPTORS	Change Strategies; Decision Making; Educational Change; *Educational Development; Educational Planning; Educational Policy; Educational Research; *Educational Strategies; *Educational Trends; *Futures (of Society); Models; *Policy Formation
IDENTIFIERS	*Educational Projections

ABSTRACT

This is a preliminary projection of holistic, alternative future patterns that might emerge among the institutions of education in the United States during the next few decades. These alternative educational patterns (AEPs) are associated in each case with broader contexts offered by selected Contingent U.S. Patterns (CUSPs). It is expected that these projects may be useful to policymakers in helping them better understand the future consequences of their decisions and in facilitating a strategic approach to educational policy. The appendix contains sectors and factors for use in projecting alternative educational patterns for the United States between 1970 and 2000. (Author/DN)

ED 089430

MAY 6 1974

U.S. DEPARTMENT OF HEALTH
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

FAR PROJECTIONS OF ALTERNATIVE EDUCATIONAL PATTERNS ASSOCIATED WITH PARTICULAR CONTINGENT U.S. PATTERNS

By: R. F. Rhyne
C. Negus
C. Hanks

For: The Educational Policy Research Center
of Stanford Research Institute

JRA WP 71-7
September 1971

JOHNSON RESEARCH ASSOCIATES
SANTA BARBARA, CALIFORNIA

EA 006 017

FAR PROJECTIONS OF ALTERNATIVE EDUCATIONAL PATTERNS ASSOCIATED WITH PARTICULAR CONTINGENT U.S. PATTERNS

R. F. Rhyne
C. Negus
C. Hanks

Johnson Research Associates, Inc.
703 Knoll Dr.
San Carlos, Calif. 94070

FAR Projections of Alternative Educational Patterns Associated with Particular Contingent U.S. Patterns

Introduction

This is a preliminary report of work in progress, intended to expose the study team's initial steps and concepts so that enroute criticism may be brought to bear upon the final product. As part of its program of support to the Educational Policy Research Center of Stanford Research Institute, Johnson Research Associates is engaged in the projection of holistic, alternative, future patterns that might emerge among the institutions of education in the USA during the next few decades. These alternative educational patterns (AEPs) are associated in each case with broader contexts offered by selected Contingent U.S. Patterns (CUSPs). Such projections appear to be well within the reach of the Field Anomaly Relaxation method that was developed for use in projecting the CUSPs themselves. However, experience at JRA in shifting attention from the world to the national scale for contextual projections had suggested to us that adaptations in the FAR method might be needed in the further focussing of attention needed for institutional projection, so the preliminary efforts reported here have been partly experimental.

There appear to be several potential uses for the kinds of projections being undertaken at this point, each of them pertaining somehow to the need that policy formulators have for an increasingly enriched, inner comprehension of the future conditions that their decisions might help to bring about or, at least, within which such decisions might have to live and

function. One particular use for institutional projections stands out, however: such projections seem likely to facilitate a kind of strategic approach to educational policy that fits especially well with American needs and capabilities.

Kinds of Strategies

The word "strategy" implies a span of attention that is wider in space, deeper in time and more inclusive in subject area than individual plans or current "tactical" selections among available courses of action. Strategies vary, however: some humbly demand rather little of their agents and make correspondingly limited promise, and others are far more purposive and ambitious. It is argued here that the former seem apt to offer "too little too late" in this especially stressed era, and that the latter too often ask more from all of us than we in fact are likely to deliver. The characteristic land-use map, wherein desired conditions are designated but detailed courses of action to achieve them are left unspecified, is an attractive intermediate between the two extremes, but too many maps of that sort address only restricted portions of the local macroproblem. Possession of alternative educational patterns arrayed along distinctive lines of development and associated with particular CUSPs invites an approach that seems to accommodate the complexities and ambiguities of the macroproblem while continuing to avoid either atomization or over-structuring of initiatives.

The several relatively standard approaches are briefly discussed below, after which the one associated with the use of holistic, alternative, institutional projections is treated somewhat more fully.

Muddling Through

In one usage, the term, muddling through, reflects a disavowal of strategic intent of any kind -- an opportunistic approach to each problem in terms of conditions immediately adjacent to it in functional space and in time. There is, however, a strategy that features individual actions that remain independent of one another and of specific expectations of long-term effect, relying for its organization upon a designation of means rather than of ends. The arguments in favor of this kind of muddling are powerfully based upon the fallibility of cause-and-effect predictions in the social sciences and the corrupting effects of inordinate attention to ends. We do not contest the idea that how a policy is pursued is apt to make more difference in the long run than what was initially intended, but now one must have serious reservations concerning a means-only strategy. To approach the macroproblem as though it were made up of disassociated parts probably would be as unrewarding as to oppose a well coordinated football team under the impression that it posed eleven independent problems, and the counterpart muddling strategy in the field of social policy probably would end by committing too few resources too late and in too fragmented a manner.

A Macrosolution to a Macroproblem

At the other extreme lies the approach urged implicitly by many policy analysts, emphasizing a comprehensively planned response to the macroproblem, with the related plans in any given sector of the whole associated with each other somewhat as the problems that they address seem to be tied together. This appeals to those of us who have spent a few decades in the analysis of the relatively simple systems and processes involved in military operations

or even simpler ones associated with ballistic orbits and nuclear weapons' effects. Unfortunately, we are ill disposed in America now to pursue such a strategy. Operational planning of the sort wherein phased actions are laid out along with the resources needed to implement them would seem to be required, and we have neither the art nor the science of complex planning that would be called for. Such an art would have to be built of hunches and insights born of many successes, and we have few examples and even fewer successes to show in any but the more mechanical kinds of operations plans; most of those few are to be found in the military field, where force tends to supplant persuasion and valuations are postponed to a degree that seems neither feasible nor attractive within an open society. A science of policy decision (if one ever were to prove feasible) at least should treat decision as the gestalt flash that it is rather than as an orderly, logical process; to build models on the latter assumption, as seems to be done in most American decision analysis, makes one skeptical from the outset.

Indicative Strategies

There is an intermediate kind of strategy that describes goals but is not so bold as to try to lay out the detailed means of achieving them, and it at least seems to be within the reach both of the executive arts and policy research techniques at the present time. Institutional projections of the sort reported here seem to have an important place within the formulation and pursuit of such strategies.

The sort of master "plan" that appears so often in connection with urban management and efforts to rationalize land use almost qualifies as an example of this kind of strategy. What we suggest here is a generalization

of that approach to apply as well to problem-fields that do not map so conveniently and to invite a more dynamic attention to change than one usually finds in maps of the preferred patterns of life in some area and for some particular future date. Indeed, the use of the world "plan" in this connection introduces serious ambiguity, and it has been applied here so that that ambiguity may be faced and removed in so far as this discussion is concerned. An architect's plan or the map that shows how a city planner would like to see his town laid out in ten years is utterly different from an operations plan that specifies a series of actions intended to bring about a desired condition plus collateral arrangements to provide in a timely way the resources essential to each of those actions. We prefer to use the word "plan" in this latter sense; "picture" or "map" or "configuration" or "condition" will be used to refer to descriptions of circumstances divorced from arrangements for bringing them about.

It is well at this point to suggest some of the characteristics that we might realistically wish to see within an indicative strategy.

- The condition chosen as a goal should not be simplistic (in the sense that it would attend only to portions of the field of concern), nor should it be utopian (consisting of an enumeration of desiderata, without consideration of the extent to which some wishes might have to be disappointed if others are to be fulfilled).

- It should be continuous through time, rather than a snap-shot of some future date, so that comparisons between goals and accomplishments might be made (and the differences between them mediated somehow) at any time and not just at one designated date.

- Such a time-continuous description of the most desirable (or least undesirable) among the plausible mixtures of good and ill before us should be associated with a particular ambience, so that on-going review might disclose whether the context that had been assumed were in fact emerging.

The FAR projection of alternative conditions within the extended problem-field of education in the USA during the next three decades seems, potentially, to meet all of these desires. The morphological expansion of all faintly plausible configurations (offered by all possible permutations of the selected sets of sectors and factors) helps to defend us against myopia, and (in so far as the work is done wisely) each configuration and each scenario sequence of such configurations offers a plausible pattern of good and ill. Because of the qualitative character of the FAR method, the impulse (that permeates most analysis) to deal only with those variables that may be quantified has little force, and for that reason there is much less likelihood of simplistic treatment than in more quantitative approaches.

The linking of configurations along time lines and the use of such sequencing to help in judging over all plausibility assures that the roster of conditions offered to The Office of Education as potential strategic objectives will not consist just of snap-shots at some terminal date. Rather, such alternatives will consist in each case of a "tube" of conditions defined at least by implication at every intermediate date, as "large" and complex at every period as the present and winding its own way (with its own history) into years to come. Correspondingly, the practice of deriving each educational contingency within some specified CUSP guarantees that the multi-dimensional setting assumed in connection with any selected goal line at least will be time-continuous so that comparisons may be made whenever one may wish to do so.

Accordingly, we suggest the following use for the educational projections presented here, or, rather, for those developed out of several successive FAR cycles of refinement of these very preliminary results.

- Treat such problem-field scenarios as examples of time-continuous strategic objectives -- a restricted universe of choice in which the internal and sequential consistency of each example at least has been systematically inspected.

- Having selected such an objective, elaborate the implied condition at selected time hacks for each comporent field of responsibility within the purview of the Office of Education, and inform each associated agency that such conditions are to be induced in so far as daily exigencies and the wisdom and luck of the local decision maker may permit. Apparent discrepancies between the hoped for condition and the actual one should be reported as they are sensed.

- Maintain a central display of the goal of the whole educational pattern in comparison with actuality, and cause satellite displays to be maintained to reflect greater detail for similar comparisons at subordinate reporting points.

- Conduct reasonably frequent reviews of: a) the extent to which desired conditions are being brought about at the times hoped for; b) the extent to which internal disparities between accomplished and projected states (e.g., unexpectedly early accomplishment or the reverse) may suggest modification of the goal array for later periods; and c) the extent to which external disparities (between the assumed CUSP and that which actually emerges over time) may justify new preferences among alternative educational patterns and hence adjustments in strategic objectives for that reason.

The Problem-Field of U.S. Education

That which affects the worth and feasibility of alternative lines of development for the public school system could be narrowly or spaciously bounded. Analysis is simpler if the field is sharply restricted, but the resulting answers then may be meaningless; very broad extension of the field's boundaries may be abstractly satisfying but self-negating because of the complexities introduced thereby. Here, as a compromise between extremes, we take the word, "education," to refer to all those activities organized and pursued for purposes of teaching and/or learning that are

socially recognized as such. This definition includes privately funded activities such as company schools intended to generate specific skills. It excludes many evidently significant kinds of teaching and learning that occur informally in the home and among peers. At present, it would exclude most advertising, but it is easy to envisage conditions in this country and within this century in which society might come to regard advertising and many kinds of recreational broadcasts as being part of education, and if so, then our definition would include them.

Sectors and Factors

It will be recalled that (in the FAR method) each field to be projected is described in terms of a limited number (like six) of categories of description. These, called "sectors", are selected from what has, so far, proven to be a list much longer than six, being picked because of their importance as structural elements. To say it differently, a sector is a category of description that you would choose if you only could take about six and wanted to convey a picture as comprehensive and as relevant to the policy considerations at hand as possible.

Several starts were made at the beginning of this current FAR projection of AEPs, using different types of factors. One approach, that was abandoned but that may be revived later, began with the following list of sectors: student population, instructional approach, institutional structure, modes of governance (including accountability), funding, and curriculum content. Each attempt to work with this list, however, ended without closure; things did not "click". It was then decided that we should take as sectors some of the more important vehicles of education, and, for reasons not year clear to us, this seemed to work better. The sectors selected were:

- The Ordinary Public School Establishment (E) -- nominally comprehensive, publicly supported education for all qualifying students, offering both liberal educations and skill instruction of various kinds and mixes.
- Ordinary Private Schools (P) -- schools such as those to be considered under E, but supported by private funds, as with various kinds of religious schools.
- National Service Schools (N) -- the kinds of schools found in the military now and that might be found in some extended institution for national service of the future, ordinarily addressed to the teaching of relatively specific skills in the past in this country, but often having broader scopes in other countries.

- Centers for the Inculcation of Particular Skills (S) -- points outside either of the prior three institutions at which students of various ages may be taught selected skills, such as those of computer programmer or perhaps reading. Such points often are privately funded, but not necessarily, within the "language" being laid out here.

- Broadcast Education -- the kind of education typified now by Sesame Street or by many other programs to be seen on National Educational Television, distinctive chiefly in the fact that almost anyone can tune in on and learn from such broadcasts.

Within each sector, factors are chosen so as to offer (hopefully) complete coverage of conditions that are deemed even moderately plausible. Again, an effort is made to limit the number of factors in each sector to about six, but the requirement for full coverage demands that each such factor be relatively inclusive. With such lists in hand, however, it becomes possible to spin out an extensive roster of potentially self consistent conditions or configurations, each specified through the selection of one factor from each sector. The selection of different sectors in the first place or of a factor roster in each that was more or less inclusive of course would alter the result, but for any given sector/factor array the morphological exploration of configurations should expose all those even marginally plausible. Also, study and past experience with FAR suggests that initially disregarded categories of description (sectors) can be "grafted on" to a configuration composed morphologically from any initial selection of sectors, but there is no doubt that an unwise initial selection can discourage some lines of speculation.

It should be noted that the exercise being reported here was a first, rapid cycle through a form of analysis designed to be iterative, and one of the main events in the second cycle of such analysis would be to modify the sector/factor list in response to lessons learned during the first "cut" at

the problem. The factors listed below and described in greater detail in Annex A are therefore to be regarded as provisional. Also, it is important to realize that these factor descriptions are not intended to be definitions but are, rather, merely indicative of the kinds of conditions to be "filed" within each factor category; only after particular, plausible configurations have been selected can one start to get precise about factor meanings, since each takes its content to a considerable extent from the whole of which it is a part. The names assigned to individual factors, accordingly are only mnemonic nick-names; they are intended just to help their users associate them with more detailed (but still tentative) descriptions, and no attempt should be made to derive meanings from them as one can do with an actual definition.

A Sector/Factor Roster for the Problem-Field of U.S. Education, 1971-2000

E: Public (Establishment) Education

1. Conventional (1945-1960)
2. Transitional (Status Quo 1970)
3. Modified Conventional
4. Liberal Education Plus Basic Skills (3Rs)
5. Skill Oriented
6. Mandarin - Elite Entre
7. Unfolding

P: Private Schools

1. Conventional (1945-1960)
2. Innovative
3. Doctrinaire, Mainstream Culture
4. Pluralist

N: National Service

1. Military, Mission Oriented
2. Military, Civic Action
3. National Service, Mission Oriented
4. National Services, Expanded Coverage

S: Skill Inculcation

1. Conventional (1945-1960)
2. Reduced Private Sector Activity
3. Increased Private Sector, Grades 8 and Above
4. Increased Private Sector, Lower Grades
5. Increased Private Sector, All Grades

B: Broadcast Education

1. Moderately Extensive, Mainstream Culture
2. Moderately Extensive, Mixed
3. Moderately Extensive, Pluralist
4. Extensive, Mixed
5. Extensive, Mainstream

Fig. 1

The moderate usage of broadcast instruction implies here as in the two previous factors that the situation occurs relatively early in the time frame under consideration or that the apparently inevitable movement toward this mode of education is impeded by technical or social developments. The Pluralist modifier in the factor name, however, suggests something more distinctive, namely a condition in which a number of fundamentally different subcultural positions and sets of values are holistically promulgated via broadcast education. There are, of course, variations within this factor as to the degree of integration and cohesion with which each subculture is taught and in the cross cultural exposure experienced by most Americans; as either or both of these key descriptors is reduced, the condition would tend toward B_2 rather than B_3. The intent in this factor is to describe situations wherein the impacts of the media upon enculturation is fundamentally devisive, at least as regards those hours of broadcast (or pages of print) seen by the public to be educational in character. It should be noted that no factor combining a large effort with such pluralist thrusts is considered here, it was felt that no plausible American future during the next thirty years promises to be so stable as to be capable of surviving such a condition for more than a few years.

Figure 2. A Sample Factor--
B_3: Medium, Pluralist

Manipulations

The foregoing sectors and factors have been subjected to the kind of manipulations used in previous CUSP projections using the FAR method, although the effort assigned here and the provisional character of the sectors and factors alike dictated that such manipulation be kept to a minimum at this point. Nevertheless, the so called Matrix of Pairs has been constructed for each of three different CUSP conditions, chiefly to explore the sensitivity of the sectors and factors to differing situations and the utility of configurations morphologically derived from them.

A comprehensive set of matrices should include at least the following cases: matrices for 1985 and 2000 for each of the five main stems of the CUSP tree (as shown in Fig. 3), plus perhaps another four to care for the fact that variations of condition within a CUSP scenario may be extreme enough to suggest distinctively different educational patterns. Here, however, such expansions have been carried out only for three cases: two alternative configurations for Scenario 2 (wherein successful evolutionary accommodation to the macroproblem as it is manifest in the USA is accomplished without any sweeping, fundamental change in the valuation core of the American culture), and one case for 1985 along Scenario 3 (which leads out of excessive committment to welfare toward a condition of bureaucratic stultification in late century). The first two of these were chosen in order to become familiar with this set of sectors and factors through initial application to social patterns broadly similar to those presently observable and to gain a feeling for the extent to which projections (using such constructs) of educational

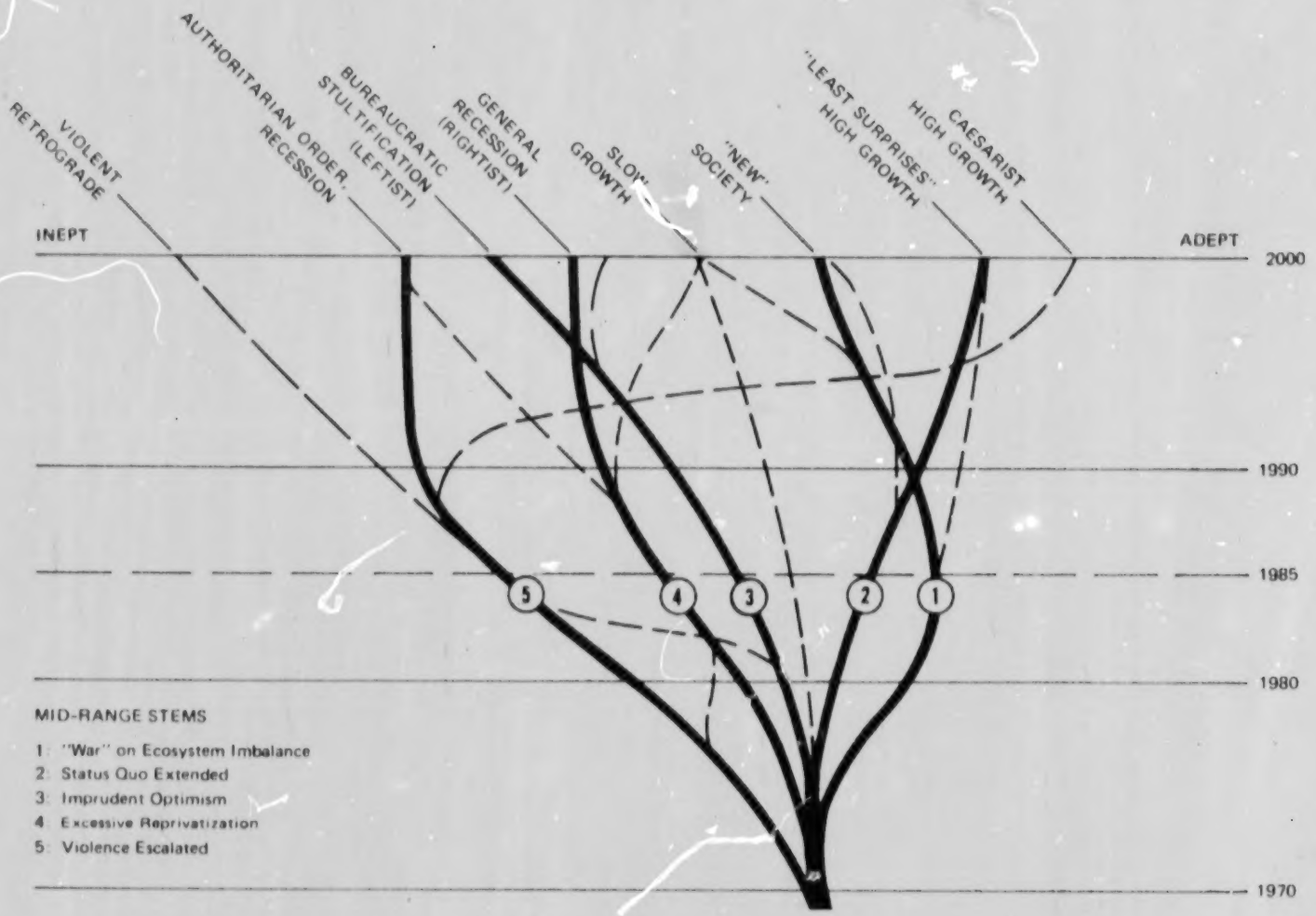


FIGURE 3 FUTURES TREE USING QUALITATIVE IDEA OF FAUSTIANNESS TO ACHIEVE A GEOMETRIC SPREAD

patterns might differ within slightly differing ambient conditions. The third case, however, seemed a better one to elaborate for the mid-September review of the EPRC program, and it is the one discussed here.

As in other FAR applications, the Matrix of Pairs is composed by playing the full list of factors against itself, forming a square, symmetrical matrix as is shown in Fig. 4. For each intersection, the same question is asked: "For the assumed CUSP condition and in view of conditions along that CUSP line both before and after the date of consideration for this matrix, would these two educational factors seem likely to be paired?" That question is answered with one of four responses ("no", "barely plausible", "plausible", and "highly plausible") for each of the intersections on one half of the matrix. Allowing for the fact that the factors within any given sector are intended to be mutually exclusive (and that therefore the answer would be "no" if any two such factors were played against each other), this leaves 258 intersections to be considered given the five sectors and their respective factors as described earlier. Several stages of inquiry are involved in working through such a matrix.

First, the ambient circumstances were reviewed. The assumed pattern is one in which bureaucratic apportionment of consumer goods gradually has superceded attention to production and productive innovation and had done so before long-standing American momenta toward comfortable consumption had been curbed. In effect, for this scenario, a trend had been introduced during the 1970s toward a pervasive raiding of that portion of the "commons"* represented by the web of skills and cultural traits that has produced today's

---

* Reference here is to Garrett Hardin's piece, "The Tragedy of the Commons", which speaks most directly about humanity's common heritage of earth and air and water. The capital pool of a nation and its store of implicitly comprehended "can do" tricks are equally common and equally subject to being raided in order to satisfy short-term desires.

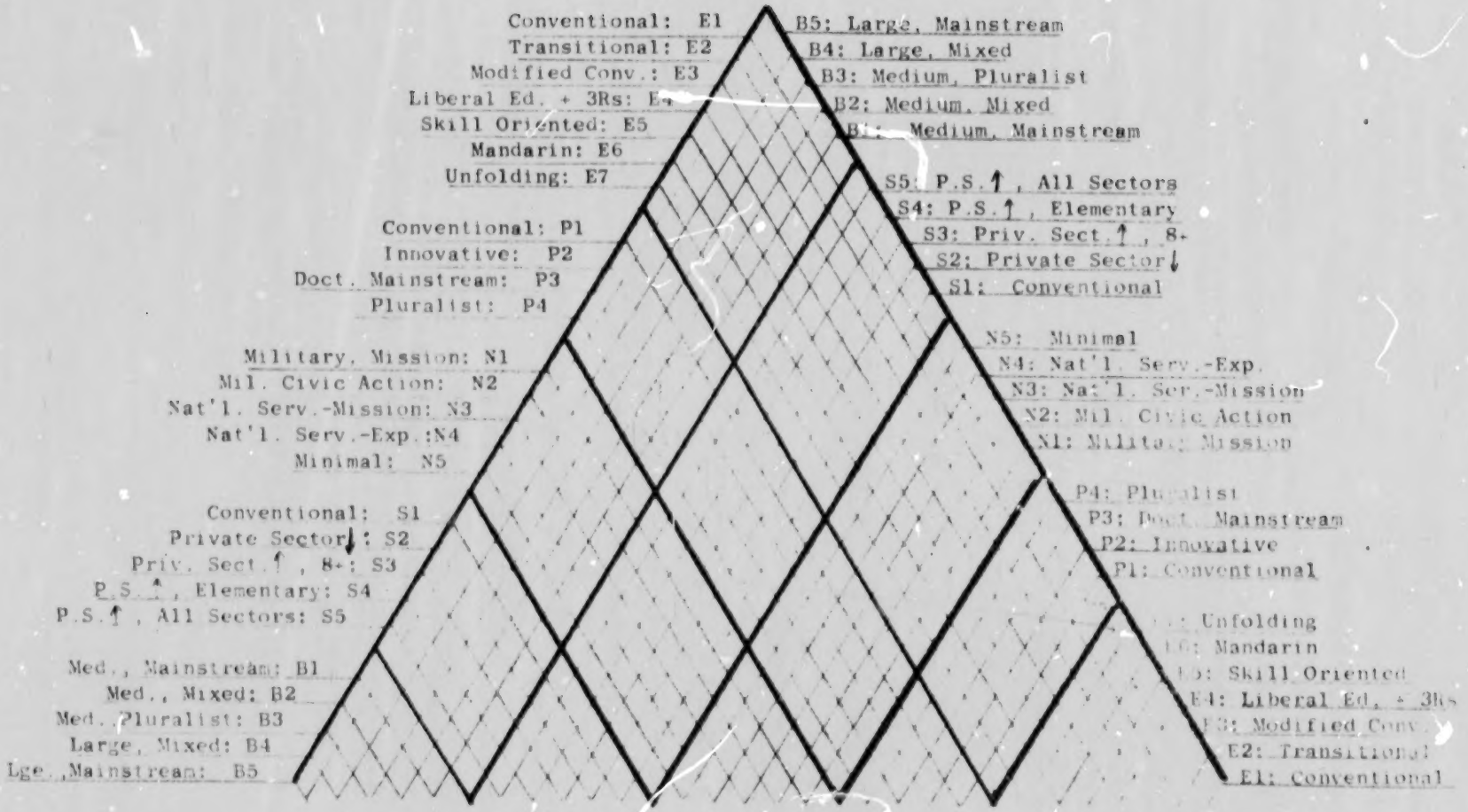


Fig. 1: A Blank Matrix of Pairs for the Problem-Field of U.S. Education

near-affluence; such raiding had become institutionalized before productivity reached a level that would permit general comfort and still leave a residue to care for regeneration of that part of the "establishment".

That trend is observable today, but at present it still seems to be balanced by other conflicting ones; by 1985 along CUSP Scenario 3, it is gaining dominance as the bureaucracy which dispenses (or at least allocates) so many material and social rewards begins to achieve an unassailable position because of such powers to dispense. The "lives of quiet desperation" that Orwell once described so convincingly are common, but each voter and group tends still to see short-term loss and long-term uncertainty in any major change. The existing pattern becomes more firmly set by practice as time goes along. Several things, most of them relatively cataclismic, might derail such a gradual devolution, but similar patterns have proven stable in the past, and this one might (as is assumed for this matrix expansion) stay in effect until 2000.*

Second, a review was made of each of the factors to see which of them might reasonably be excluded from further consideration for the chosen CUSP condition. This was done for each of the 26 factors in the current set for education, resulting (for this case) in the elimination of 12, as indicated by shading in Fig. 5. The reasons for dropping factors B_5 and B_3 are described here to illustrate the process.

Both B_5 and B_4 assume that a significant part of the whole effort that is recognized by society to be educational in character is being accomplished through the introduction of materials into the mass media for more or less

---

* For those familiar with the Sector/Factor constructs used in the CUSP projections, a plausible configuration for this case would be:

$$A_3\ C_3\ T_3\ I_6\ V_2\ E_3\ S_{2,4}\ --\ U_3\ P_{3,5}\ M_6\ O_5\ D_4$$

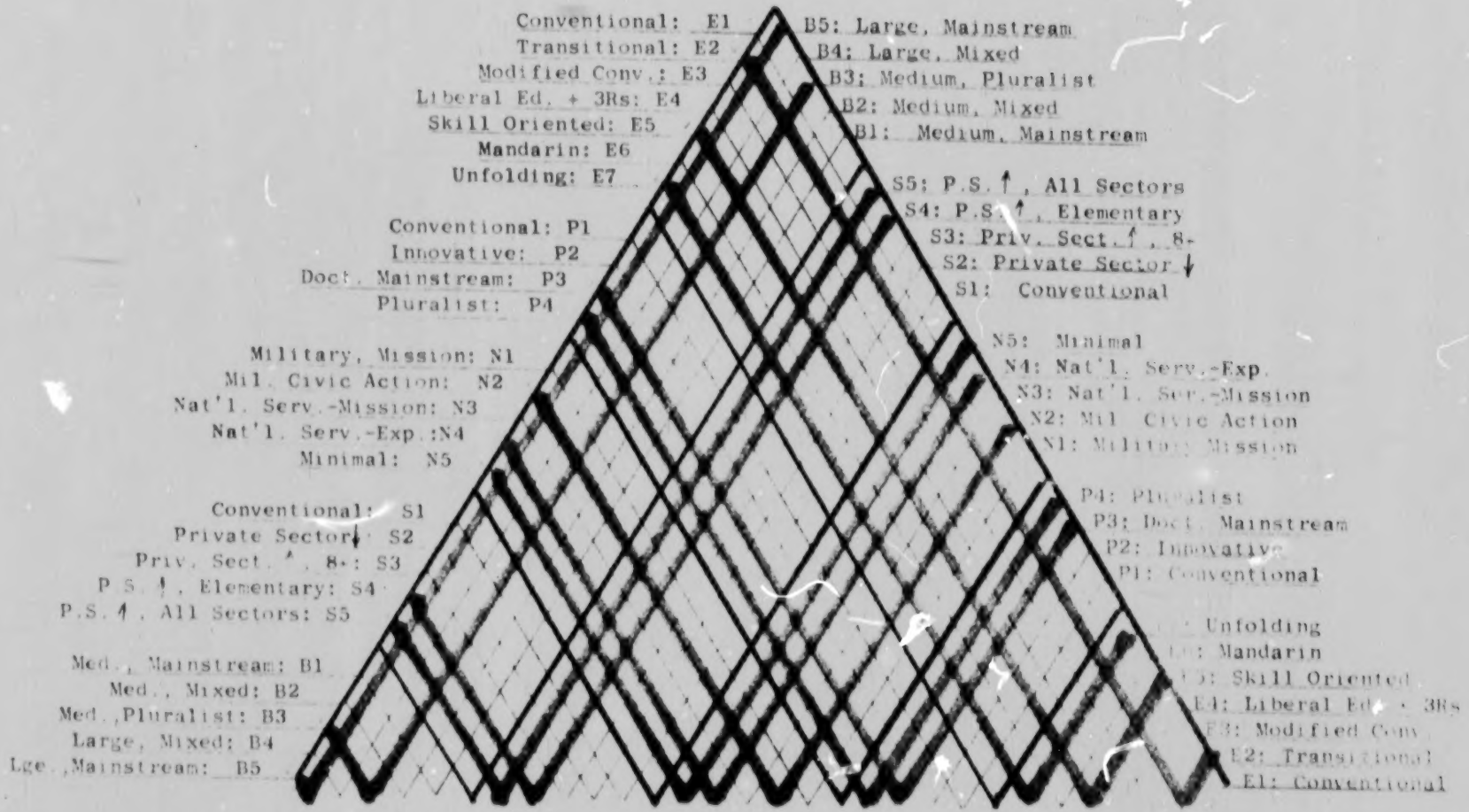


Fig. 5: Cancelled Educational Factors, Within the Context of CUSP Scenario 3, 1985

general reception and use. The assumption is that TV is the chief vehicle used, owing to its proven persuasiveness and (with assumed technological improvement, which seems nearly certain in this field for any futures not characterized by outright collapse) its increasing capacity to lend verisimilitude to its presentations of real or fictional tales.

For B_5, it is assumed that either public favor or governmental pressure limits such broadcast instruction to materials and ideas consonant with the mainstream culture of the region and probably of the nation; such a pattern might indeed fit with a later stage of development along CUSP Scenario 3, but 1985 seems too early for it. After all, the decade of the 1970s should have been only lightly stressed along this line, since attention to consumer satisfaction should have "bought off" some disturbers of the peace and the consequences of nonregeneration of the productive system would be slow abuilding. There would, in other words, be little reason for the near-authoritarian mood suggested by B_5, and it therefore is excluded from further consideration for this case.

It was felt that B_4 was marginally acceptable in this condition; there would be ample time (given the moderately prosperous, consumer-oriented economy that should have characterized the 1970's on this scenario) for the development of electronic communications to a point such as to invite massive applications of broadcast education, the public mood seems apt to have been one that would favor a culturally mixed pattern if such emphases were to emerge, and the recessional character of the mid 1980's that characterized this line of evolution would invite the economies that probably could be had by turning to a broadcast mode of instruction. The bureaucratism of life,

which is the hallmark of this CUSP, though having contrary impulses, could not be firmly enough entrenched by 1985 to either drive a B_4 to B_5 or to entirely prevent it from happening.

It should be noted here that some of the foregoing arguments might seem equally cogent when applied to the other three "B" factors. The study team felt, however, that no bureaucratic reservation could have prevented an expansion of broadcast education to levels well above those existing in the early 1970s, so that some "medium" factor would be needed to describe the situation in 1985. Review of the three such factors suggested that conditions might be easily visualized in which either B_1 or B_2 could exist; however, it was felt that the growing bureaucratic strength and the turmoil of the intervening fifteen years would have precluded the prevalence of B_3 (with its invitation to cultural divisiveness and group efforts to preempt others in the pursuit of scarce goods).

The final stage of inquiry, for a matrix of this sort, calls for the separate consideration of all intersections not already eliminated. This ordinarily is done one sub-matrix at a time to facilitate comparisons among judgments of relative plausibility. As an example, the sub-matrix formed by the "E" sector (Public Establishment Schools) and that for "B" (Broadcast Education) is discussed here and is shown in Fig. 6. Where a given pair of E/B factors is judged to be too implausible to merit the consideration of a prudent planner, the corresponding intersection on the matrix is left unmarked on Fig. 6 (although in the actual work room a red tack is used in such cases to avoid confusion). A pair that is judged to be barely plausible is marked with a dot. One scored "plausible" is given a small square symbol, and a large square is assigned to those that appear highly plausible.

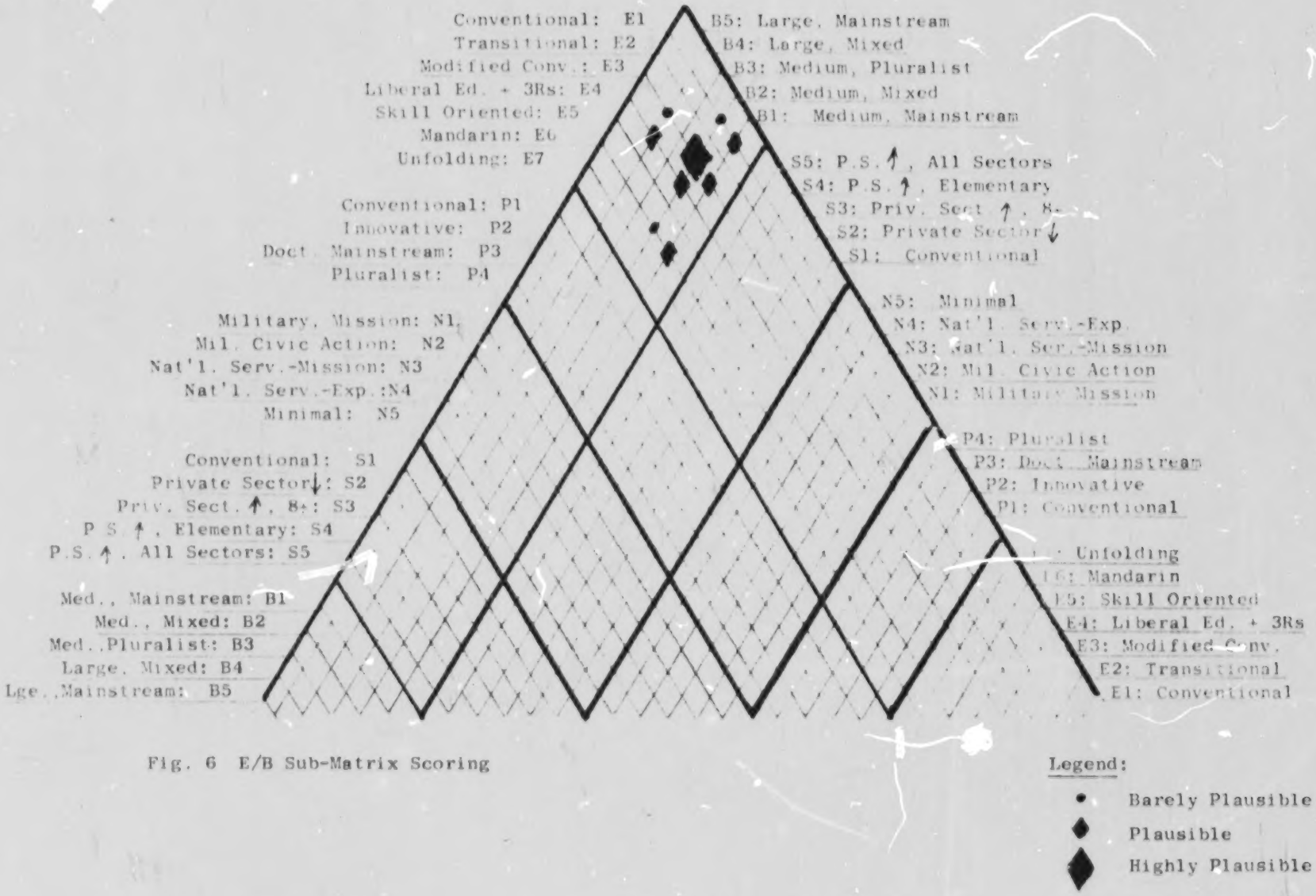


Fig. 6 E/B Sub-Matrix Scoring

Legend:

- Barely Plausible
- Plausible
- Highly Plausible

The arguments that led to each of the assessments shown on Fig. 6 (and the corresponding ones for the other squares for this and other Matrices of Pairs) generally were discursive and diverse; they do not report well, which is one of the reasons for our belief that the terminal cycle of a FAR projection should be made with the active participation of client personnel. Some of the arguments leading to the scoring of this sub-matrix can be described, however.

B_1: Medium, Mainstream Broadcast Education

- This form of broadcast education, in which the mass media are used deliberately to inculcate the mainstream culture (in a sort of latter-day melting pot approach), suggests unsatisfactory experimentation during the 1970s with cultural pluralism and an early firming of the underlying garrison character of this CUSP line. A return to a work-a-day, minimum-option educational form such as E_1 or a transition to public school pattern (E_6) in which the establishment schools are devoted to the discovery of talents and their assignment to bureaucratic slots both seem plausible here and would merit a rating of "highly plausible" later in the century -- 1985 seems a little early for things to have thickened so much.
- E_3 also seems worth an intermediate plausibility rating in combination with B_1, but a public school system as open as that suggested by E_4 seems too unlikely to merit the consideration of even a very prudent planner.

B_4: Large, Mixed Broadcast Education

- E_4, in which the public schools assume the responsibility of offering an education in basic skills and "soft" subjects while leaving most training in specific skills to the private training centers, offers the best fit here. As with B_4, it reflects a relatively confident social atmosphere and a declaration in favor of learning. The pair is still scored as being merely plausible, however, since B_4 itself seems slightly more "bouncy" than the CUSP condition assumed here would call for.
- E_3, a somewhat more open version of the occupation-oriented education of the decades just after WW II, seems a barely plausible companion to B_4. E_1 and E_6 seem hardly to fit at all.

B_2: Medium, Mixed Broadcast Education

- E_3 seems to fit best here, matching the easy extension of conditions in 1971 that is presented by B_2; since each of the factors seems quite plausible for the given CUSP condition and since they go together nicely, this pair is scored as "highly plausible".
- E_4, with its implied activity in the private sector seems plausible enough as a companion to B_2, but not extremely so. Technology probably would have produced a capacity for a large broadcast effort by 1985, and the bureaucratic pressures that might have impeded such growth (so as to give a B_2 rather than a B_4) might also have impeded the relative openness of an E_4 factor.

- E_1 and E_6, both relatively closed forms and potentially later along the CUSP line, seem plausible companions to B_2, but only marginally so.

When the whole matrix has been scored in this way, the next step is to collect configurations in which one factor is nominated from each sector and for which none of the ten pairs* involved in any five-sector configuration is negative. This process is relatively tedious when done manually, so a computer program has been prepared for it; a program that not only pulls out all such qualifying configurations but adds up the plausibility scores (one, two, or three) assigned to each pair. If each of the pairs has been scored as plausible, with a rating of two points, the sum for the configuration would be 20; a preponderance of "highly plausible" (three point ratings) ratings would raise the configuration score, while an excess of one-point scores would lower it. Such sums are merely a guide to the analyst, however, the adding of separate considerations of pairs is not the same as consideration of the set as a whole and may not be substituted for it, and some configurations that survive the filter of the Matrix of Pairs with a relatively high score still may seem only marginally plausible when viewed as a whole.

The print-out for this particular AEP matrix (corresponding to CUSP Scenario 3 at 1985) is reproduced in Fig.7. Forty three configurations survived as candidate AEPs, with a high score of 21, a low score of 15, and a mean of 18.4. In a more comprehensive analysis, rather than the illustrative one reported here, each of these configurations would be considered at least

---

* That is, with five sectors as in this case, the following kinds of pairs would have to be judged to be individually plausible if a configuration were to survive as a candidate AEP.

EB, ES, EN, EP; BS, BN, BP; SN, SP; and NP

briefly for holistic coherence and policy relevance. In this case, we treat with only two of them, one illustrative of an early thickening of bureaucratic trends within education and the other more of a middle-ground for the particular CUSP condition selected as an embracing context in this instance.

E1	B1	S1	N1	P1	20
E1	B1	S1	N3	P1	19
E1	B1	S3	N1	P1	19
E1	B1	S3	N1	P2	20
E1	B1	S3	N3	P1	17
E1	B2	S1	N1	P1	19
E1	B2	S1	N3	P1	19
E1	B2	S2	N1	P1	16
E1	B2	S2	N3	P1	17
E1	B2	S3	N1	P1	17
E1	B2	S3	N1	P2	16
E1	B2	S3	N3	P1	16
E3	B1	S1	N1	P1	19
E3	B1	S1	N3	P1	19
E3	B1	S3	N1	P1	19
E3	B1	S3	N1	P2	19
E3	B1	S3	N3	P1	18
E3	B2	S1	N1	P1	20
E3	B2	S1	N3	P1	21
E3	B2	S2	N1	P1	18
E3	B2	S2	N3	P1	20
E3	B2	S3	N1	P1	19
E3	B2	S3	N1	P2	17
E3	B2	S3	N3	P1	19
E3	B4	S1	N1	P1	17
E3	B4	S1	N3	P1	18
E3	B4	S3	N1	P1	18
E3	B4	S3	N1	P2	16
E3	B4	S3	N3	P1	18
E4	B2	S3	N1	P1	19
E4	B2	S3	N3	P1	20
E4	B4	S3	N1	P1	20
E4	B4	S3	N3	P1	21
E6	B1	S1	N1	P1	19
E6	B1	S1	N3	P1	19
E6	B1	S3	N1	P1	19
E6	B1	S3	N1	P2	19
E6	B1	S3	N3	P1	18
E6	B2	S1	N1	P1	18
E6	B2	S1	N3	P1	19
E6	B2	S3	N1	P1	17
E6	B2	S3	N1	P2	15
E6	B2	S3	N3	P1	17

Fig. 7 Forty Three Candidate Alternative Educational Patterns (AEPs) Consonant with CUSP Scenario 3 at 1985.

ANNEX A

Sectors and Factors for Use in Projecting Alternative Educational Patterns for the U.S.A., 1970-2000

E. Public (Establishment) Education

This section describes the virtually tuition free, broad-gage, publically financed, "public school" system typified by the Grammar School (K to 6 or 9), Junior High School (7 to 9), High School (9 or 10 to 12) and Junior College (13 and 14); it is essentially the typical public school system found throughout the United States today. Plant, equipment and personnel are all covered under this sector, and an attempt will be made to describe some of the more fundamental changes in their nature which are possible within the 30 years' time span under consideration.

E_1 Conventional (1945-1960)

This example is typified by the livelihood-skill orientation found in the public schools in the 1945 to 1960 period. The instructional approach tended to be constant and to follow the major dictum of curriculum content--that of providing the generally recognized tools for entrance into the mainstream of the society. Primarily this was restricted to the largely white majority, with most of the minority groups in basically a "holding pattern" designed to provide a basic education to those who wanted it--through the general compulsory attendance--and prepare them, generally for low skill jobs. For the most part, integration was not forced and, though there was a marked increase in access to more and better education, it remained, under the neighborhood school concept, a function of socio-economic ability to pick the right neighborhoods.

There was little compensatory education, and that was primarily directed toward the physically and mentally handicapped. There was no recognizable "voucher" plan except for the GI Bill; the public schools were partially compensated for students living on federal land, outside of the local tax base.

Most of the financing, and what governance that existed, was on the state and local basis.

Throughout the period, there was a rise in the generally accepted level of educational achievement considered desirable; consequently, there was a like transition in the schools from an orientation toward ensuring livelihood skills for "blue collar" workers to an emphasis on college preparation and "white collar" skill acquisition. This resulted in ever increasing numbers of students, primarily white, being directed toward two and four year college educations.

Though possible, it is not expected that (except in some of the more disadvantageous CUSPS) there will be a retrenching back to this position in the time frame in question. It may be behind us, to be thought of as another chapter in "The Good Old Days". Indeed, those days may not have seemed all that good when we were there, but, in retrospect, they could come to look relatively attractive. It could come about (see E_3 below, and shown on the Lewinian Map, Fig. A-1) as a result of a locking in of one philosophy and approach, presumably within a situation more relaxed than the present.

E_2 Transitional (1960 through Present)

This factor represents a continuation into the future of a trend that has been growing in the past decade, or it might be a reversion to the present unsatisfactory circumstance as a result of being in one of the more undesirable CUSPs. The transitional case is not expected to be stable or acceptable; however, it may last for relatively long periods of time as the institution tries to address itself to the perceived need for

change within a trap of inertias which adequately served the past but fails the present.

The transitional period features both controlled and uncontrolled searches for a better way, combined with both the desire to return to quieter times and the frustrations of being unable to conduct the education business as usual. The student population, when confronted with an indecisive authority, tends to praise the disrupter and seize the initiative in an attempt to add its voice, in regards to a perceived set of needs, to the confusion. It is not rational to expect students to be a homogeneous group (especially in light of the lack of unity facing them), and their perceived needs can be expected to differ from one place and group to another at least as radically as proposed solutions differ.

The curriculum content and instructional approach would be expected to vary considerably, even in the face of guidelines which seemed to universally guide and be widely acceptable a few short years past. The underlying consensus which gave philosophic integrity to the instructional approach has had and is having its implicit structure reviewed and the upheaval will affect both the curriculum content and the structure of the institution itself. The institution will be forced to react and change (a very complex, lenghy process of evolution, or an abrupt one of revolution) to accommodate the new climate.

As at present, the public is apt to feel that education is inadequate and may retaliate by withholding financial support; the educational institution within E_2 will be in an increasing financial pinch. Public education will find itself seeking mechanisms to facilitate access to state and federal

funds while trying to maintain its structural integrity; the trend will be for the funding agencies to attempt to impose a new set of controls.

The hallmarks of an E_2 condition would be disturbance and lack of agreement concerning both the ends and means of education and the frequency with which untenable single value answers are picked for complex parts of inter-related problems add to the general confusion.

E_3 Modified Conventional

This factor is one of the alternative solutions to the problems of a period of transition, E_2. It is envisioned as an adequate accommodation of the universal desires for change in the transition period combined with the stability needed. The public education system will in all probability derive a major share of its support from the Federal government and will be forced to accept some form of Federally monitored accountability criteria.

Within this factor it might be that two to five of the best Follow-Through models would be incorporated within the present institutional framework. Schools, or districts, would then offer various models for education from which the students or their parents could choose. If this follows present trends, the schools would be partially directed by and receive active help from parents.

Curriculum content will be responsive to the immediate goal of providing all students with a basic ability to read, write and compute -- an up-dated "3-Rs" core. It is expected that, in addition to parent aids, there will be considerable use of teacher extenders-some mechanical but primarily para-professionals-designed both to aid in the general education and to help teachers respond to the imposed accountability, throughout

the education period, regarding those skills deemed essential. Other subjects surely would be taught, but this factor is viewed as one in which conceptual order and pragmatic skills would tend to come before socialization and the liberal arts, at least in earlier grades.

As can be seen on the Lewinian map of the Public Education sector, the Modified Conventional factor is a central element in the transition to both Factor 4, Liberal Education plus Basic Skills, and to Factor 7, Unfolding. It is also one of the paths to the other four factors, providing a link to all. If the Modified Conventional factor works well it can be an end in itself, or, depending on circumstances defined by the CUSP within which it finds itself, can lead to the alternately desirable Factors 4 and 7. If, for the many reasons possible, Factor 3 fails, it also provides the necessary machinery to shift into Factor 6, Mandarin-Elite Entre, or back into Factor 2. This sector could also drift into a mode quite similar to that described in E_1, above, if it were sufficiently successful in re-establishing a widely accepted framework which would sufficiently relax tensions and allow the system to lock in, more or less unnoticed because it was doing its job successfully.

E_4 Liberal Education Plus Basic Skills (3Rs)

This factor is one that is characterized by the division of functions along the whole spectrum of education, probably brought on by a type of voucher system causing a specialization of functions. In this case, public education is held responsible for providing socializing and basic skills in the primary grades, but focusses progressively on the former at higher grades; a general liberal education would be offered to those who wanted such schooling.

Higher skills are purchased by the students outside the framework of the public school system.

The total student population in the public schools, or at least the student-hours spent there, would be less than at present and the institutional structure would probably be pared back accordingly; it would be expected that there would be a large lateral shift of displaced teachers and administrators into the other sectors. It is highly unlikely that the public schools would have the responsibility for compensatory education; if some primary skill wasn't learned where it was to have been taught in the public schools, it would then be in the province of a special school.

As in Factor 3, Modified Conventional, the public schools would probably offer a choice of educational models for student/parent selection and with a generally mainstream orientation. This would be especially true if the transition to this factor were accomplished while leaving most of the structure of the primary school intact.

Governance and accountability would be in the hands of those agencies providing the funds; in all likelihood the Federal Government. There would be strict accountability enforced in the basic skill instruction and, to the extent possible, in socialization in the primary grades, and only a minimal amount in remaining grades which provided continuing socialization and a general liberal education.

E_5 Skill Oriented

This factor describes a public education system which has, for any of a number of reasons, relinquished the jobs of socialization and providing a liberal education. It has gone into competition with other sectors in the

educational spectrum to provide only output accountable skills. The socialization and non-output accountable subjects (i.e., English, history, etc.) have been left to the Broadcast Education and Private School sectors. It is expected that this would come about as the result of the failure of public education to attract enough funding, in all probability vouchers, by concentrating on topics not subject to output accountability. Under the pressure to produce, public education has opted for direct competition in easily definable areas.

This alternative is probably the result of a major disruption in the whole education system. There are many combinations of circumstances that could cause this; a major one could be the disintegration of the public school education as a result of its inability to overcome the divisive forces at work during the present transition period. This, combined with a voucher type plan, a marked rise in the ability and availability of materials in the broadcast media, numbers of private schools, a large national service school system and private sector. Intolerable pressure and the growth of other institutions would be needed to drive the public education system out of its traditional role.

The student load would be down and students and their parents would have significantly more power over the institution due to its position in a direct competition mode, forcing the public system into a more strict presentation of its limited bill of fare. The institutional structure would have to change markedly, overhead trimmed drastically to be more competitive.

This alternative is viewed as unlikely, but in light of present difficulties, not impossible as a response to a set of mutually exclusive simultaneous demands.

E_6 Mandarin - Elite Entre

This alternative is one which requires a marked change in the whole structure of public education. Here the primary function of public education would be to prepare students for posts in one of the many bureaucracies, governmental and other. A system of examinations along the educational ladder would shunt off students into job areas or for non-advancement skills at each stage. Those students who continued to pass would progress into higher education designed to prepare them for higher positions in the bureaucracies. Curriculum content would consist of teaching skills needed to prepare a student for the next series of exams. The schools would be graded, as would teachers for advancement, with a high degree of output accountability.

In all probability compensatory education would be a minor function of the public education system. Some compensatory education in basic skills would be afforded those who had been selected out at an early age, but only to prepare them to take a low order job within a bureaucracy or on the private labor market.

The instructional approach would tend, in the face of a large emphasis placed on output accountability, to be very structured and strict, featuring surveillance and the discovery of specific talents more than their creation. Socialization and a liberal education would be left to the broadcast education sector, except for those few who made it to the level now regarded as university. At the university level it would be expected that a liberal type education would be regarded as necessary element in the training of an upper-level bureaucrat.

Funding, as in the case of governance, would be on the State and Federal level--those bureaucracies which would benefit most from a system designed to fit their needs.

As can be seen on the Lewinian map, Fig. A-1, this system, if it comes at all, will be late and out of a fairly structured past, although an incipient form might emerge as early as 1985. The version of E_3 which would predate this would probably have a highly structured character and be under pressure to be more responsive to a society which had opted for large bureaucracies in most areas of livelihood. The transition from E_5 would just be a more rigid formalizing of many of the trends found there.

E_7 Unfolding (New Society)

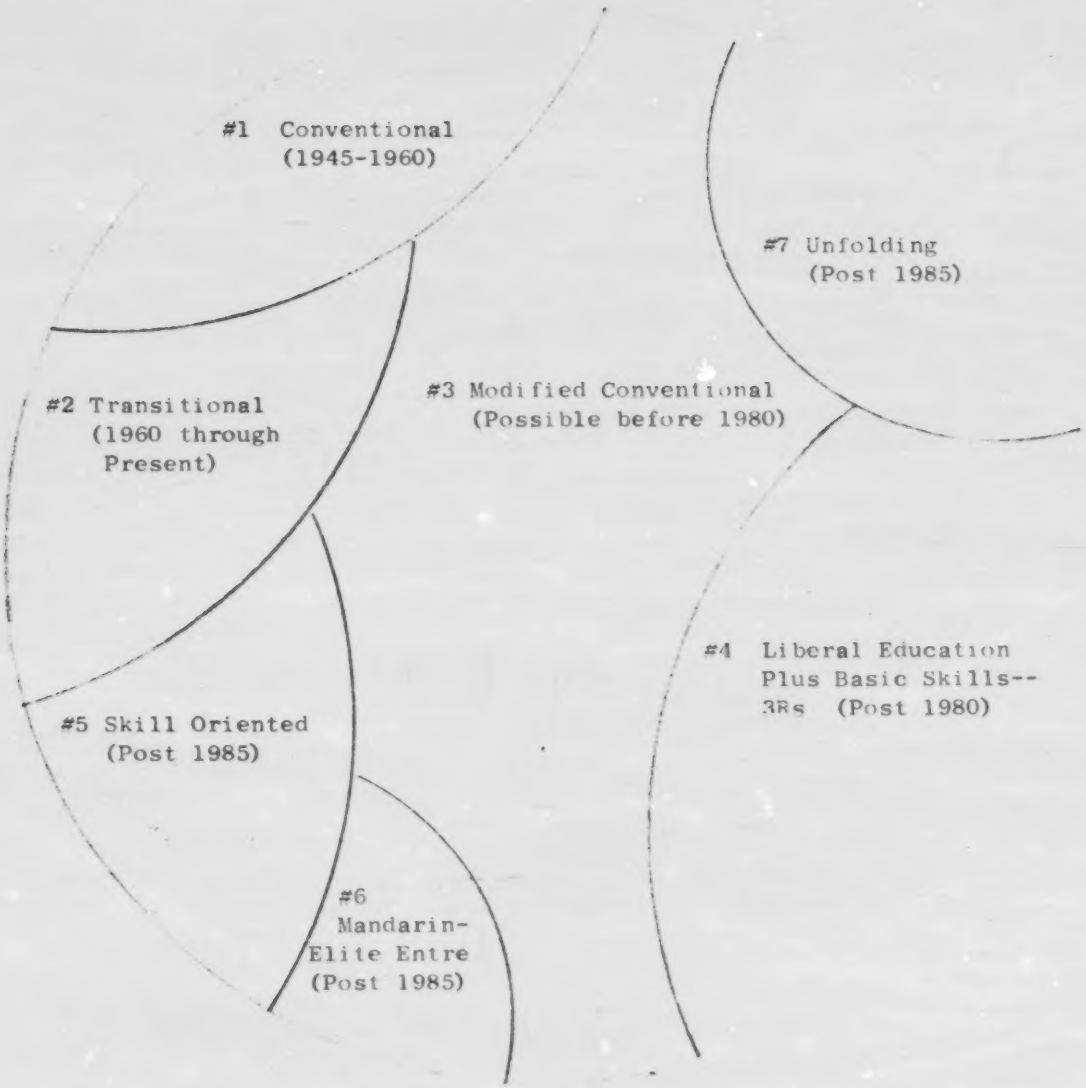
This alternative implies a wide societal value change as a prerequisite throughout the nation. The path leading to this option probably would be one of stability, growth, and a widespread well-being felt through the society. Value changes might have resulted in a marked reduction in economic demand, yielding the inattention to material striving implied by this educational mode, but satiation of some sort seems essential. The ecological imbalance and related problems would have to be on the way to solution without impacting severly on economic ease. This would also require a quiet, peaceful, stable CUSP condition.

Most schools would be in the public domain as there would be little need for a special school offering an alternative to public education, and public education would offer a very wide range of selections from which the students could select. A general understanding that rights imply correlative responsibilities would seem essential, with a few rigorous, fast rules which say, in effect, that people are free to do anything but restrict another's

freedoms. Instructional approaches would vary but would be primarily directed toward helping each individual student reach his or her potential in their own way. This would require different techniques in the preparation of teachers and changes in the philosophy of the schools. The subsequent change in the image of teachers, and commensurate change in rewards, would be designed to attract individuals who were truly gifted in the person centered unfolding mode. The selection process to choose really capable people would have to be much more insightful than at present.

The early stages might consist of a gradual progression from an E_3 which has worked well and left a mood for more experimentation along the lines of the more person centered models. This allows the public school system to take a position in the vanguard of a growing basic change in the values of the culture. It could also grow out of an E_4 which found that natural evolution took the system on to E_7 as a next step.

The student population would be comprised of the full age spectrum in the society, as many people would drop back into school for renewal or a different type of educational experience. This would probably be a part of a lifetime learning experience with a basic level (6th or 9th grade) required and the rest done as desired, with the opportunity to regard the educational experience as a vocation. The public education institution will probably remain much the same as it is; the direction, of course, would be much changed. There would be wide use of para-professionals and much more of students-teaching-students.



Public (Establishment) Education
Factor Map

Fig. A-1

P: Private Schools

The Private School Sector describes the relatively small, at present, group of schools and institutions which competes with the public schools for the general education of the K through high school student population. Private schools both mirror public schools and respond to deficiencies perceived in public schools. For the most part, the private school seeks to gain students through providing services not found in public schools for which there is a felt need by at least some parents and/or pupils. The private schools (P) share with the public ones (E) the characteristic of offering at least what purports to be a full basic education.

P_1 Conventional

This factor represents the characteristic mode of private schools during the post war period. Somewhat elitist in overall orientation, the private schools offered fairly broad curricula and spanned the range from military prep schools to "Free Schools". The general concentration on cultural core materials, intellectual skill development, and the liberal arts has tended to reinforce traditional mainstream values and to facilitate upward mobility for the more affluent who were able to afford it. Access for most middle and lower socio-economic students tended to be highly limited except in parochial or the small number of minority-culture schools. Prestige and esteem are the most important reasons for the choice of private over public schooling.

P_2 Innovative

This factor represents a reaction on the part of the private schools to a public school system which seems to be failing in substantial areas of the education of students, or it could represent a public school system which

is out of phase with a felt need for institutional change. Whatever the cause, private schools are experimenting with innovative techniques and methods in an attempt to lure students from an unsatisfactory public school system. It seems necessary that a voucher type program facilitate the establishment of a system of this type, owing to the financial inability of most people who might make use of its services. Person centered, unfolding orientations would be expected to be one of the available options; student age grouping here would tend to vary widely, especially with a voucher plan, and accountability in this mode would tend toward the evaluation of the schools rather than the students.

$\underline{P_3}$ Doctrinaire, Mainstream Culture

This factor is intended to be a response by the private schools to a public school system which is failing in the teaching of both basic skills and enculturation. The private schools would be characterized by a strong emphasis on mainstream, mono-cultural indoctrination with a high degree of attention placed on basic skills in the early years and livelihood skills in higher education. Again, this factor appears to require some sort of voucher type, public financed competition with public schools to place this type of a choice within reach of the general population.

$\underline{P_4}$ Pluralist

In this alternative, the private school sector is characterized by curricular emphasis upon various sub-cultures. The primary emphasis would be on sub-cultural identification and indoctrination, with skills being of secondary importance.

This posture would, in all probability, come about as a reaction on the part of the various sub-cultural groups to the feeling that their cultural

identity was being submerged in the mainstream in the public schools. This is expected to be a late evolving alternative in a rather non-stressed CUSP in which some type of public funding allows anyone to seek an education where he or she chooses. It is also expected that, though teaching cultural diversity, the private schools are constrained sharply--financial as well as accreditation controls in the hands of the establishment--to keep the pluralism non-hostile. The alternative--a private school system given over to the teaching of discreteness within each of a number of sub-cultural groups and functioning without inhibition of "combat" instruction--seems appropriate only to extremely volatile near-future cases or to later ones of societal collapse.

Private Schools
Factor Map

Fig. A-2

N: National Service Schools

This sector covers a significant portion of the total public funds expended explicitly for education, but has sometimes been omitted from discussions of the national education system. It often has made significant contributions to the teaching of higher technological skills as well as clerical and managerial ones, and it also has functioned in a remedial mode by helping to bring the previously ill-educated recruit up to minimum levels of "3-R" performance. It can serve (as it ordinarily does in emergent nations in modern times) as a vehicle for national as contrasted with subgroup enculturation. In the past, military schools have dominated in this sector, but such need not always be the case.

As with students engaged in other parts of the educational complex, many things will be learned in a national service system that are not actually taught there, but attention is focussed here as in other sectors upon that which is socially recognized to be instruction -- to teaching/learning activities typified by but limited to formal class work.

N_1 Military, Mission Oriented

In this factor, military schools are the only significant ones identified with national service, as has been the case in the US since at least about 1940; as also has been true during that time, instruction would be addressed chiefly to the provision of knowledge and skills deemed necessary to the accomplishment of whatever missions might have been assigned to the military unit in question. For instance, under this factor, instruction in primary skills such as the 3-Rs (or at a later date perhaps in simple computer programming) would be undertaken only in so far as might seem needed if jobs at hand were to be efficiently pursued. Curriculum content

could be inferred, with reasonable accuracy, by consideration of mission statements, and accountability would tend toward output measures (class grades, skill-category assignment); input measures also would be significant as in the past (officer efficiency ratings for teachers, Congressional overviews of the schools, etc.).

N_2 Military, Civic Action

This factor differs from the previous one chiefly in that it offers more extensive training. Instruction is not limited just to the generation of skills and knowledge needed for mission accomplishment, but rather is extended to other areas deemed socially desirable. Compensatory education might be included, perhaps with students being offered classes specifically tailored to help fill gaps exposed by examinations -- to make up for what was somehow not transmitted in earlier schooling. Retraining of individuals whose crafts might have become obsolete would be a strong possibility in some of the futures to be considered, and it might even be a significant part of the appeal of military service. This use of military schools makes up an important part of "civic action" (the utilization of military resources for socially desirable achievement) in many developing nations, where the military establishment is apt to be the only efficient institution and frequently the only one capable as an efficient conveyor belt from tribal cultures into the national one. It could possibly play a similar role in this country in those CUSPs wherein cultural dissociation is an issue. Output accountability would be important, but perhaps less so than for N_1, since instruction might be less directed toward the inculcation of particular, testable skills.

N_3 National Service, Mission Oriented

This factor is a direct counterpart to N_1, with the difference that here it is assumed that national service and the training accomplished within it are significantly broader than just military. Indeed, the military component might become minor. Schooling still would focus on facilitating mission accomplishment, being broader than in N_1 only if the missions in question called for such expansion. This suggests a social condition in which the nation intently pursues some superordinate goal, such as perhaps in a Red Queen's race (wherein great effort must be expended just to avoid losing) against pollution. Until ambient circumstances (PWP/CUSP) are designated, one cannot infer the form that national service might take nor the character of the related missions to which its schools might address their attentions.

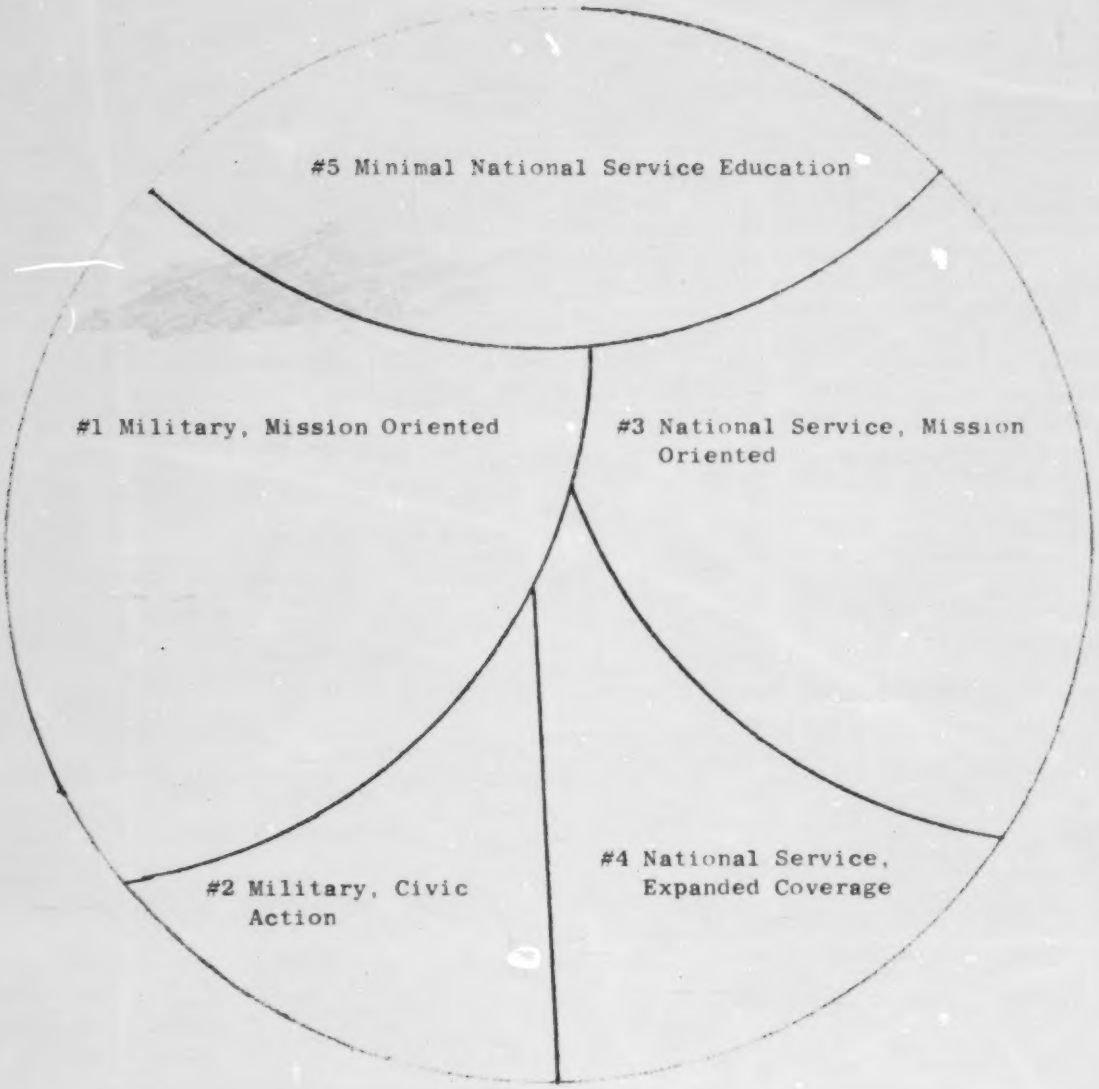
N_4 National Service, Expanded Coverage

This factor bears the same relation to N_2 that N_3 does to N_1. In it, there is a more-than-military national service institution the schools of which are devoted not only to the kinds of instruction needed for mission accomplishment but to broader educational or custodial functions as well. While society might be under pressure here, it also might not, but in any case the singleness of purpose suggested by N_3 is not likely to be present. It is necessary, however, to take ambient circumstances into account before trying to infer the character of education that might be offered and accepted.

N_5 Minimal National Service Education

Relationships Among Factors

Fig.A-3 maps the adjacency relations among these five factors. The 1971 condition probably could best be classed as N_1. It could evolve into any one of the other four, with a move directly into a pattern of broad-coverage, national-service training being the least plausible. A transition from a condition where national service training of any kind were of minor significance into either of the extended training patterns of N_2 (military) or N_4 (non-military) would seem somewhat unlikely, as would a shift from mission-oriented national service training to a broad form of national service instruction. The other shift that comes at once to mind (from broad-gage national service training to mission-oriented military instruction, or the reverse) does seem likely to occur, but probably only in connection with a shift from war to peace or back again.


#5 Minimal National Service Education
#1 Military, Mission Oriented
#3 National Service, Mission Oriented
#2 Military, Civic Action
#4 National Service, Expanded Coverage

National Service Schools
Factor Map

Fig. A-3

S: Skill Schools

This sector is addressed to that portion of the educational system which focuses on the transmission or development of particular skills, as opposed to broad-gage cultural patterns. Such institutions (skill schools) may be publically funded and administered or they may be privately administered on a proprietary basis and funded by proprietary groups, by private tuition, or by public financed voucher. The significant characteristic of the skill schools is that they focus on narrowly defined skills and specialized training. Private remedial schools, vocational schools, proprietary or public technical courses, industrial training programs, apprenticeship programs, and technical and professional schools all fall within the scope of this sector.

S_1 Conventional Skill Training

This factor represents a condition in the specialized training or transmission of skills which has characterized the US pattern over the last 20 years, and more. This is a mixed public/proprietary system in which skill training is secondary to general public (or private) education. Skill development in this condition occurs in a mix of courses for development of intellectual and vocational skills in public and private schools, vocational education schools, for the job training and apprenticeship programs, graduate professional training, and specialized skill courses in public and proprietary schools

Students tend to cluster in the 15-20 year age bracket (grades 8--12,14) with some continued skill training among the 20 - 30 year age group for more

technical or professional skills. A small amount of continuing adult education and retraining is found in this condition as well. Compensatory skill education would continue to be found predominately in the public educational sector.

S_2 Reduced Private Sector

This condition is one in which the public educational system provides not only basic intellectual and rudimentary vocational skills, but also advanced skill training. Proprietary skill training is correspondingly diminished. This condition suggests that apprenticeship programs in various skill areas are conducted in extended skill schools, and that para-professional and more extensive professional training programs are conducted in the public schools.

The student population in this condition could cover the entire age spectrum from 4-6 to 25 (grades K - 12,14 +) with growing emphasis on specialized skills in the 15-25 age bracket. Public support of such a condition would enhance educational opportunities for minority or low socio-economic status students. The only financial requirements for such a condition might require either conditions of economic success, or a decision to devote a larger share of the national budget (GNP) to education.

A condition of extended public sector skill development would probably be associated with significant increases in output accountability -- the students coming through the system would probably have to perform as advertised in order for such a system to continue to obtain needed public funding. On the other hand such an educational-pattern is obviously consistent with a condition of extensive or comprehensive state ownership.

S_3 Increased Private Sector (Grades 8+)

In this condition the private sector assumes a greater role in skill training. This is especially true in the higher grades (8+) and for the acquisition of special skills after completing core curriculum requirements in the public schools. Independent specialized schools and training programs or ones affiliated with organized labor or industry would be more frequent. Graduate and technical training would be divided between private and public institutions. In a reprivatization mode in the national educational establishment this pattern would closely tie up with a voucher system. Assessment of worth would tend to lean toward input rather than output accountability. The student population would tend to fall in the 15-20 year age group; the size of the 20-30 year group would vary directly with the degree to which the voucher plan were implemented, or to which public subsidy of students were available.

The curricula of skill schools in this factor would tend to emphasize special vocational and professional skills for career preparation and retraining; less emphasis would be placed on basic intellectual skills, although proprietary compensatory education could easily be a characteristic element.

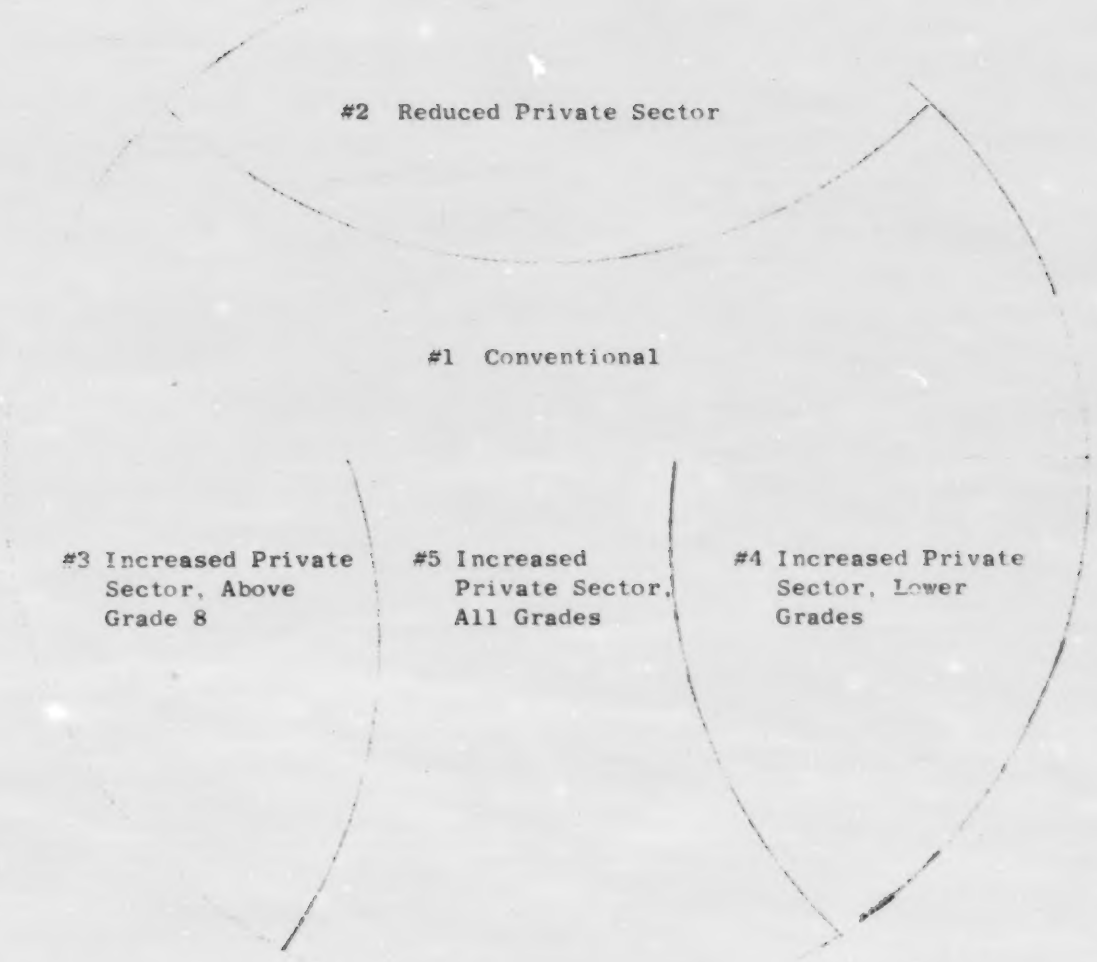
S_4 Increased Private Sector, Primary Skills Emphasis

This condition is one in which the private sector provides a greater amount of the primary skills than is the case in S_1. Performance contracting and voucher schools in the primary and secondary grades would be significantly increased over the present S_1 condition. Focusing on the 4, 6 to 18 year age group the proprietary curricula would tend to emphasize

fundamental intellectual skills (3Rs) and perhaps even synthesizing disciplines such as history, geography, and anthropology. Some vocational and technical skills would be provided by the private sector, but not significantly more than in S_1. Input accountability is a likely concomitant of such a system. Compensatory education programs, if tied to a voucher system, would be expected to increase markedly and such a system could be an early element in our attempt to overcome constraints imposed by low socio-economic status.

S_5 Increased Private Sector, All Grades and Skills

This factor represents what might be described as a full voucher system. The private and public sectors could easily be in competition at all levels, or might establish spheres of influence relationships based on the effectiveness of their respective programs. Proprietary schools would be engaged in the teaching of later basic intellectual skills (3R's) integrative skills such as geography, history, and anthropology, as well as technical and professional specialities. This condition implies a vigorous and competitive educational market place for students of all ages and socio-economic levels.


#2 Reduced Private Sector
#1 Conventional
#3 Increased Private Sector, Above Grade 8
#5 Increased Private Sector, All Grades
#4 Increased Private Sector, Lower Grades

Skill School
Factor Map

Fig. A-4

B: Broadcast Education

This sector is concerned with the delivery of education via the mass media, in broadcast form. National Educational TV (and Sesame Street in particular) offers an example, as do many kinds of books and informative periodicals. The edges of this sector evidently are hard to designate, and (as the gestalt capacities of TV become more pronounced through technical improvement) it reaches farther into implicit, enculturative modes of instruction than do the other sectors considered here. Indeed, it seems likely that this kind of education and especially its TV element may be called on by society to carry most of the burden of enculturation as that function slips, by default, away from home, church, and work environment.

The factors here are delineated in terms of the size of the activity and its coherence. As regards the former, it seemed to the study group to be very unlikely that this form of education would not increase in importance relative to other educational vehicles in even the very near future; as a result, no factors for the future are called out for small broadcast educational efforts of the sort that characterize the present and recent past. Rather, factors are designated "medium" or "large", with the former suggesting perhaps twice to five times the current investment in broadcast materials considered by the society to be formally educational and the latter applicable to cases where such investments might account for a quarter or more of all such investments. Variations in coherence are covered by the terms, "mainstream" and "mixed"; it is assumed that any form that might be assumed by broadcast education will be a mixture of skill instruction and enculturative efforts, so mixture here refers just to the extent to which cultural relativism and diversity are pushed.

B_1 Medium, Mainstream

This factor covers a type of broadcast education in which the effort and funds expended are modest in proportion to the whole field of education (though somewhat larger than in 1971) and in which the authorities responsible for the activity are chiefly concerned with the preservation or introduction of one cultural form. The issue here is not so much whether the single culture being pushed is the same as that being correspondingly promulgated in an adjacent region nor whether it is exactly correspondent to the pre-existing culture in its area. The former probably would be true to some extent in any non-totalitarian U.S. future, owing just to the regional distinctions in this country, while the latter might eventuate either regionally or nationally in cases where an innovation-minded elite were able to gain effective control over the broadcast education system. To fit within this sector, however, a condition would have to be characterized by almost completely monolithic presentation of one cultural whole within each of a majority of the regions of the country.

The relatively modest effort reflected by this factor apparently suggests that it would come early rather than late in the three decade period of projection, and most of the CUSP alternatives that would be sufficiently authoritarian to support it seem apt to be late, so this factor must be regarded as somewhat unlikely in most foreseeable situations. A heavily bureaucratized CUSP might produce the right condition, however.

B_2 Medium, Mixed

This case, the title of which is almost self-explanatory, is one in which the regional mainstream culture is presented along with several others

in modes such that relatively few recipients of such broadcast information are apt to be exposed to just one cultural alternative. It probably should be regarded as the status quo extended for this sector, differing from the current pattern chiefly in that increasing technological capacity has led to more broadcast education than at present.

B_3 Medium, Pluralist

The moderate usage of broadcast instruction implies here as in the two previous factors that the situation occurs relatively early in the time frame under consideration or that the apparently inevitable movement toward this mode of education is impeded by technical or social developments. The Pluralist modifier in the factor name, however, suggests something more distinctive, namely a condition in which a number of fundamentally different subcultural positions and sets of values are holistically promulgated via broadcast education. There are, of course, variations within this factor as to the degree of integration and cohesion with which each subculture is taught and in the cross cultural exposure experienced by most Americans; as either or both of these key descriptors is reduced, the condition would tend toward B_2 rather than B_3. The intent in this factor is to describe situations wherein the impacts of the media upon enculturation is fundamentally devisive, at least as regards those hours of broadcast (or pages of print) seen by the public to be educational in character. It should be noted that no factor combining a large effort with such pluralist thrusts is considered here, it was felt that no plausible American future during the next thirty years promises to be so stable as to be capable of surviving such a condition for more than a few years.

B_4 Large, Mixed

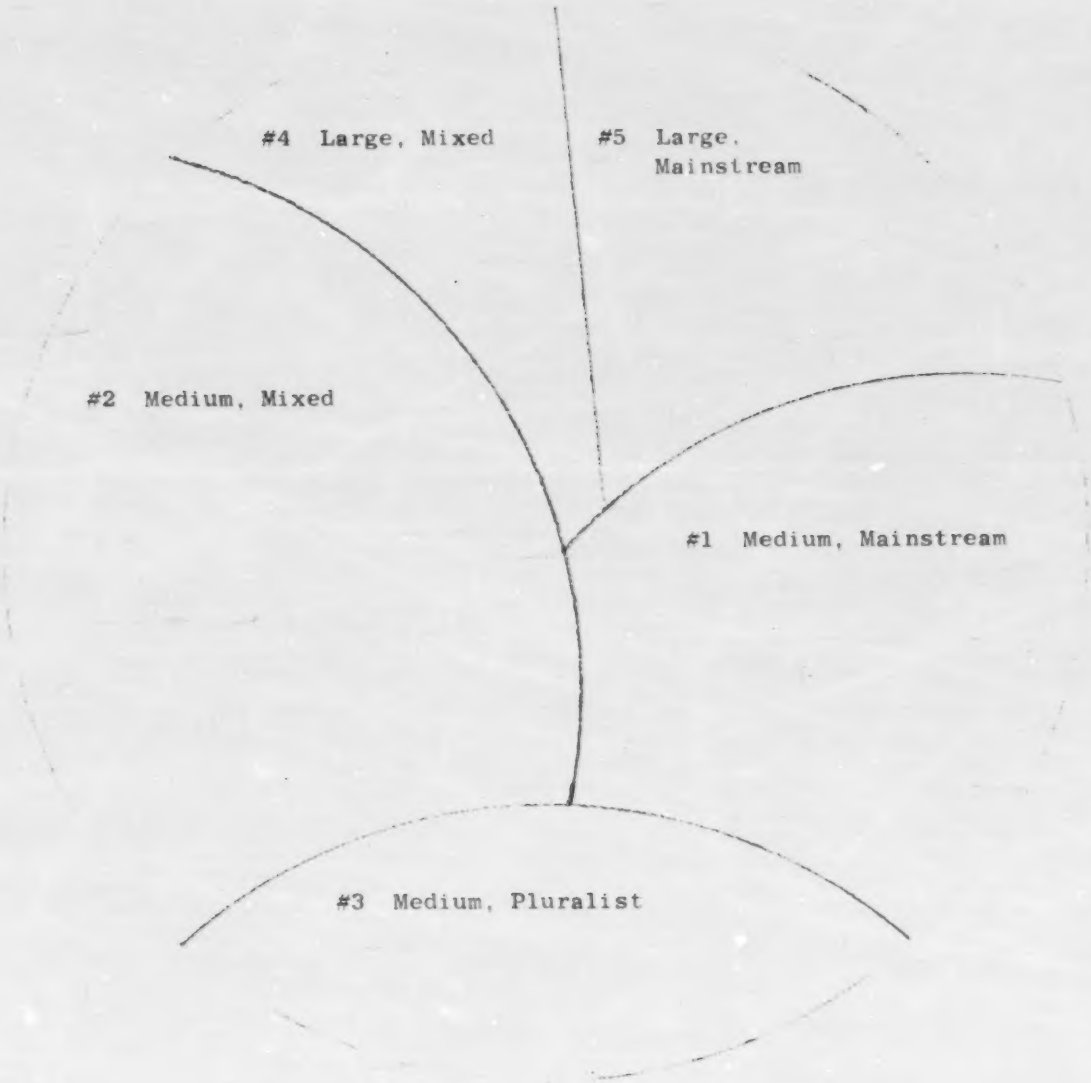
This factor is the direct counterpart of B_2, differing only in the amount of emphasis, time, and resources addressed to broadcast forms of education. As in all of this sector, it is assumed that skill inculcation would play a significant part; the mixture here refers to the cultural fare made available to most receivers of the educational materials, with a considerable amount of time and attention given to the regional or national mainstream culture but with many alternative traits and whole cultural patterns aired. It avoids a pluralist pattern (which was viewed as being too devisive to be plausible, in so large an effort as is reflected by this factor) by assuring that few whole subcultures find themselves exposed just to their own distinctive pattern.

B_5 Large, Mainstream

In many respects, this seems like a possible response to a period of chaotic experimentation with cultural pluralism, but it applies tools for indoctrination of such potential power and impact that anyone who values openness in society must be anxious at the prospect. In it, a significant part of the whole effort to educate members of society is broadcast, and the content is such as to cause the continuation of whatever culture is seen to be acceptable by those governing the system. This could, of course, reflect either an elitist operation calculated to introduce a desired kind of cultural sameness or a condition in which society has reached pervasive agreement on one pattern and acts (as d'Toqueville feared it would) to insist that no other be perceived. The latter alternative, however, seems rather unlikely to have time to evolve in this country and this century unless it were to emerge as a revulsion against excessive pluralism and attendant disorders.

Relations Among Factors

Fig.A-5 shows a Lewinian map of this sector. The present pattern (mixed, small effort) might evolve into B_1, B_2, or B_3, with the second being perhaps a little the most plausible. Transition from B_2 to either B_1 or B_3 would seem easy, so those factors must be drawn adjacent to each other. B_1 or B_3 might evolve into B_5 (as suggested by the adjacency relations on the map), the former by simple growth and the latter as a pendulum swing away from cultural relativism. The only two transitions that are drawn as being especially unlikely are those between B_3 and B_4 and between B_2 and B_5. The first seemed unlikely because the shift out of the pluralist mode would seem to reflect some kind of societal anxiety that would seem to militate against a concurrent expansion of the effort devoted to broadcast education. The other shift, from a medium and mixed pattern into a large and culturally monolithic one, seemed to call for pressures that are hard to visualize, although a sufficient level of anxiety in a governing elite combined with expanded confidence in some of the behavioral sciences might suffice.



Broadcast Education
Factor Map

Fig. A-5

Selected Configurations, Elaborated

$E_6B_1S_1N_3P_1$

Mandarin Public Education; Medium, Mainstream Broadcast Education; Conventional Skill Education; Mission-Oriented National Service Training; Conventional Private School Education.

This educational configuration, possible by 1985 but more likely later on, is associated with a high degree of bureaucratization of all levels of government, labor, and business. The formal educational system, being part of governmental bureaucracies, has adapted to the world in which it lives, and has expanded its control over the whole field of education as rapidly and in as much depth as possible. The public school curriculum would be designed to find the correct person for the correct slot in a bureaucracy and then prepare that student to pass the tests required for that post. Public and private broadcast education would also be controlled by the educational bureaucracy through their exercise of the control machinery available at present and by a tight control of funding. It is believed that this control would be sufficient to constrain broadcast education almost entirely to strengthening the existing culture - a "melting pot" function. This surely would reinforce the position of the establishment as well. Higher skills would be taught, along with compensatory treatment of basic ones.

The Skill Sector maintains approximately the same balance between public and private control as at present, with skill-oriented night school classes bureaucratized along with the public school system, and privately owned technical training schools responding to the growing business/labor bureaucracy.

The National Service Sector would be expanded from its current military orientation to include national service training in most of the bureaucracies surrounding the other cabinet level positions. These institutions would

absorb a large portion of the excess student population squeezed out of the public school system in the early selection phases. Private schools would offer much the same education as they did during the 1960s, providing a wide variety of choices of curriculum content and instructional approaches. Most private schools, however, will offer an education much the same as that found in the public schools but specializing in the preparation of those students who can afford it for passing higher exams.

$E_3B_2S_1N_3P_1$

Modified Conventional Public Education; Medium Mixed Broadcast Education; Conventional Skill Education; Mission-Oriented National Service Training; Conventional Private School Education.

This educational configuration is one of the more desirable ones associated with CUSP Scenario 3 in 1985. The public education system made a successful accommodation to the transitional period, of the present, and once again has settled down to business-as-usual. There is an emphasis on the teaching of output accountable skills, but a broad, general curriculum is also offered in most schools. The educational component of broadcast education, though under some constraints from the educational bureaucracy's partial control of funding, maintains enough freedom, in this environment, to offer a medium-mixed bill-of-fare.

The Skill Sector of the overall educational system has not grown appreciably over the 1970 level, societal/economic needs for skills having been effectively cared for by regular public and private schools and within an expanded national service system. Though mission oriented, national service schools help meet the skill training and employment needs of an economy which has sufficient numbers of unemployed and under-employed to be

characterized by the designation of Slow Growth-Recessional. The Private School Sector, for the same reasons as the Skill Sector, has not expanded appreciably; the public schools and broadcast education have succeeded in adjusting to the felt need for change and provide a quite acceptable free public education, so the Private School Sector has grown little, if at all. As this is a relatively stable, not highly stressed CUSP and a general feeling of "don't rock the boat" is pervasive, the private schools are offering a conventional spread of curriculum content and instructional modes, with a high emphasis on providing an education similar but "better" than the public schools.

Scenarios

This section must be very abbreviated, since as yet the work has not progressed beyond the mere sequencing of configurations, and that has been done for only a few cases. Four such scenario outlines are described here; one of them moving from one 1985 configuration and the other three flowing from a second condition for that year; all are associated with CUSP Scenario 3.

AEP Scenario 1. This line is defined at 1985 configuration, $E_6B_1S_1N_3P_1$, with the characteristics already described for that condition. To have reached this pattern as early as 1985, either of two developments would seem apt to have happened: the bureaucratic "set" of CUSP Scenario 3 might have firmed up a little early, with the educational system falling in step with it; or the educational bureaucracy itself may have developed more rapidly than others in society, thereby leading the general trend to some extent.

Being established so early, however, it seems likely that the pattern will have achieved so much homeostatic stability that nothing short of some kind of Caesarist hiatus would derail it, and this scenario runs onward and downward (toward Bureaucratic Stultification) through the rest of the century. It is a dull, unattractive, easily described line of devolution.

AEP Scenario 2. This is one of three other plausible lines of evolution for U.S. education within the embracing context offered by CUSP Scenario 3. All three share the same configuration at the year 1985, $E_3B_2S_1N_3P_1$. This schematic specification reflects a condition in which bureaucratic control over decisions within education is much less extensive than was the case in 1985 for the preceding scenario.

This pattern is intermediate on a scale of openness along this CUSP line. It might evolve from the present with relatively few noticeable events within the field of education itself, although both the Congress and the upper reaches of the Executive Branch probably would have come into conflict with the bureaucracy and lost their battles with it if CUSP 3 itself were to have settled in. Indeed, the combination of relative order in the public schools (E_3) combined with a mixed pattern of broadcast education suggests that nothing very spectacular could have happened within education -- both developments lie along presently discernible trends that might be interrupted either by an excess of sub-cultural differences or bureaucratic inhibitions.

Along this variant scenario or "tube" of future educational conditions, it is assumed that the adverse impacts of a "garrison" posture in the U.S.A. and the internal logic of increasing bureaucratization drive the institutions of education toward much the same end-of-century condition invisaged in AEP Scenario 1, above. That condition might be schematically represented by the configuration, $E_6B_5S_1N_3P_1$. Such a relatively authoritarian pattern (as indicated especially by the large broadcast educational effort devoted to the inculcation of the mainstream culture, combined with a slot-fitting approach in the public schools and little or no leavening of the pattern from the other sectors) might evolve gradually over a long period of time, as was hypothesized in the first of the outline scenarios suggested here. If, however, the first half of the period of projection had passed with only a moderate thickening of the educational bureaucracy's control, as has been assumed for this case, transition to such an authoritarian pattern implies

high stress. For this scenario, accordingly, it is assumed that the years between 1985 and 2000 AD were ones in which pluralist differences within the U.S.A. were exacerbated by angry foreign relations with many different countries, especially ones where population crises had resulted in great hardship. The world context most consonant with CUSP 3 seems to be one in which a black/white, rich/poor split has emerged and driven the developed nations into a garrison posture; this AEP scenario assumes that related pluralist conflicts have forced a move toward oligarchic control and extreme emphasis upon enculturation into a mainstream culture.

AEP Scenario 3. This scenario need not be elaborated so much as the previous one, since it reflects a relatively unspectacular evolution from the same moderately bureaucratized pattern at 1985, namely $E_3B_2S_1N_3P_1$. Less pressed, society still might demand a greater level of cultural coherence than would be likely without something like a B_5 factor in the Broadcast Education Sector, but better times imply a greater need for custodial capacities in the schools and in an extended national service system. The public schools themselves might continue in an E_3 condition, and the century's end configuration along this line of development might be $E_3B_5S_1N_4P_1$.

This pattern cannot be thought of as being attractive, but it might be among the least disadvantageous alternatives practically available to the educational strategist unfortunate enough to find himself living in CUSP Scenario 3 at about 1985. It might, therefore, constitute a "fallback" strategic objective and to merit greater elaboration for that reason at some future date.

AEP Scenario 4. This case, again flowing from the same 1985 pattern

as in the preceeding two tales, may be thought of as a good-news alternative, probably to be associated with a successful, non-dictatorial break out from the CUSP line leading into Bureaucratic Stultification. With education either leading the trend or merely riding with it, the electorate comes to realize that short term deflation and a general belt-tightening are needed, together with more devoted efforts to solve the many ecological imbalances produced by irresolution (the characteristic vice of bureaucracies) and compartmented "solutions". A need for more skills replaces the previous surplus, breadth of cultural comprehension takes on new value, and a purposive (rather than custodial) national service system emerges.

The education system shifts to a pattern characterized by the AEP configuration, $E_4B_4S_3N_3P_1$. That is, public schools become more attentive to conveying a liberal education while leaving to specialized training centers the inculcation of most skills other than the primary ones. Private schools remain in a generally conventional mode, perhaps leaning a little toward the teaching of the mainstream culture as some parents find the new leavening in the rest of the educational field not to their liking. Broadcast education assumes a significant part of the whole educational effort, but it offers a mixed cultural fare. National service training is significant, especially in the remedial teaching of skills that have become newly important as ecological emphases rise and which had not been offered to those passing through the schools a decade or two earlier.

Evaluation

There can be no prospect, at this preliminary stage of inquiry, of evaluating alternative "tubes" of educational conditions and seeing which might serve in each CUSP scenario as a plausible, unitary strategic objective. Such indeed is the purpose of projections of the sort essayed here, but the work has not yet progressed to where even illustrative nominations of objectives would be in order. It is possible at this stage, however, to evaluate the research approach that has been used.

Two points deserve attention. First, it seems clear that FAR projections of institutions and problem-fields (such as the extended field of U.S. education) are feasible and promise to yield just the kind of referent "tubes" of conditions that are needed in the formulation and pursuit of indicative strategies. Second, the selection of sectors in this preliminary exploration has proven to have both advantages and disadvantages; further, brief experimentation on this topic is in order before a second and more exacting cycle of projection is undertaken.

The work reported here has, effectively, completed the first three of the four standard steps of analysis of the FAR method: (1) several alternative future patterns for U.S. education were visualized; (2) a schematic language of sectors and factors was selected and elaborated; and (3) morphological expansions of those sectors and factors were made for selected societal contexts. The fourth step, of generating scenarios for particular lines of evolution of the complex of educational institutions in this country, has not been done yet. Nevertheless, (and in spite of the fact that the sectors initially selected may later seem less attractive than some alternative set)

the configurations that were generated were sufficiently distinctive and showed enough association with selected ambient contexts to give promise that the fourth step of the FAR cycle may be effectively pursued to produce scenarios much richer than those outlined above. When such scenarios have been generated, and when (in connection with checks on plausible sequencing of events) descriptive categories other than the five original sectors are used to "enflesh" the originally generated, skeletal configurations, each should offer the kind of time-continuous, holistic description that might be chosen as a strategic goal.

The particular set of categories chosen as sectors has seemed faintly unsatisfactory to those of us working with them, in spite of the fact that they seem conducive to the production of useful results. They permit an effective spinning of alternative structural patterns for education, but they do not address directly most of the salient questions of the hour. This may not be a deficiency. The effectiveness of the early CUSP work may be traceable to the fact that the sectors used then were largely structural rather than valuative, and subsequent association of more aromatic kinds of comparison has not proved difficult. It does indeed, however, seem unsatisfying to expand descriptions that merely tell how the educational complex might look, without dealing directly with such questions of curricular content and instructional effectiveness.

For example, the decision of the California Supreme Court relative to the financing of public schools through property taxes was handed down during the course of this analysis, and our inability to associate that event with a simple factor change was slightly disappointing. An expansion which had

used funding modes as one sector would have facilitated an explanation of configurations consonant with the apparent implications of that Court decision. It is true that a transition (in terms of the factors described in this report) from an E_3S_1 kind of a pattern to one characterized by E_4S_3 implies the introduction of an extensive voucher plan, and that in turn suggests some shifting of resources from the local level to State or National agencies -- and that in turn may be affected by the Court decision. Such things are below rather than on the surface, and a different Sector/Factor list may help to expose them.

On the other hand, if AEPs are to be used as suggested as candidate strategic objectives, then the terms used in describing them should match reasonably well with present or future subdivisions of authority, and the sector categories used so far may serve better in that respect than would others that are more closely associated with problems cutting across all Office of Education areas of responsibility.

These opposed lines of evaluation merely underline points made earlier. The shift of attention from regional, whole-society projections to ones for institutions operative within such regional contexts is distinctive enough so that experimentation is called for, and the uncertainty at this stage of inquiry as to the set of sectors that may prove a better basis for further study and for decision, reflects that fact.